Test #5

1. an ideal solution has no energy change ✓
2. Curves A and D ✓
3. Curve B ✓
4. The chemical change occurs at 40°C ✓
5. At 40°C to 100°C ✓
6. Curve 4 looks like most solid solutes ✓
7. Yes, the entropy change can be negative when any of the solutes above dissolve ✓
8. Curve C ✓
9. The blue liquid is a solution that is colloid ✓
10. Molality: 0.500m density: 1.14 g/mL

$$\left(\frac{0.500 \text{ moles of } Mg(OH)_2}{1}\right)\left(\frac{58.3 \text{ g } Mg(OH)_2}{1 \text{ mole } Mg(OH)_2}\right)$$

$= 29.2 \text{ g } Mg(OH)_2$

Total: $29.2 \text{ g} + 1.00\times10^3 \text{ g}$ ✓

$= 1.03\times10^3 \text{ g}$ ✓

$$\left(\frac{1.03\times10^3 \text{ g}}{1}\right)\left(\frac{1 \text{ mL}}{1.145}\right) = 904 \text{ mL}$$ ✓

$904 \text{ mL} = 0.904 \text{ L}$ ✓

$$\text{molarity} = \frac{0.500 \text{ moles } Mg(OH)_2}{0.904 \text{ L}}$$

$= 0.553 \text{ M}$ ✓

16/16 100%

11. $\left(\frac{0.9659 \text{ moles of water}}{1}\right)\left(\frac{18.0 \text{ g water}}{1 \text{ mole of water}}\right) = 17.4 \text{ g water}$

17.4 g = 0.0174 Kg ✓

molality: $\frac{0.0342 \text{ moles of KCl}}{0.0174 \text{ Kg of water}} = 1.97 \text{ m}$ ✓

12. The triple point temperature will decrease ✓